

B. General Comments Related to Funding

Comment II.B.1 from City of Dover - As we all know, the economy is in crisis. The City of Dover has a 2.5% tax cap in place. The Federal and State government have cut back contributions for entitlements such as Medicare where the local community is now required to pay larger shares. Citizens are losing jobs and will be late with or default entirely on paying their taxes and properties are going into foreclosure. Local government will also be faced with cutting budgets by cutting back on staffing and programs. The additional requirements, proposed in the new permit, set the communities up to fail which subsequently sets the MS4 program up to fail. The EPA will be forced to begin enforcement action against many of the communities for not satisfying the minimum standards; thereby, going from a cooperative effort to achieve a common goal to an adversarial relationship in which progress towards the goal is lost.

Comment II.B.2 from Town of Derry - Complying with the requirements of the draft permit would require a significant increase in the level of resources. Some of these include the effort and costs associated with the outfall monitoring and analytical testing, and certain tasks at EPA-specified schedule (without allowing flexibility based on permittee's experience and knowledge such as catch basin inspections and cleaning, street sweeping). In the current economic climate, municipal budgets are being trimmed to levels that may require staff reductions and cuts to all programs. In addition, the timing of the public release of the draft permit (if funds were even available) could not be budget for the next fiscal year. As a result, permittees are destined to fail due to lack of funding and resources alone.

Comment II.B.3 from Town of Amherst - The Town of Amherst has been annually budgeting \$15,000 for our stormwater program since the program's inception in 2003. Until this time this budget has been sufficient to support the program and the requirements of the NPDES MS-4 permit. Under the new permit requirements and in these difficult economic times, this budget will need to be tripled or quadrupled to meet the requirements of the new program with no federal assistance to help support the cost increase. The municipal budgets are currently very lean with little to no room for line item increases and at this time the proposed permit will be unfeasible with the money that we have to work with. Where will the funds to support this revised stormwater permit come from?

Comment II.B.4 from Steve Miller - I understand the perspectives of the speakers (at the January meeting) when they expressed their concern about the cost the new proposed rules would inflict on the municipalities. I know this to be a real problem as I know how hard some municipalities have worked to reduce impacts of runoffs. But I also know first hand that many decision makers see water quality as a secondary issue of little concern and a great deal of work toward solving these issues is of the "lowest common denominator sort". Efforts are only what "is required" and no more. A lot of work is done to meet minimum standards with little or no consideration of the goal of cleaner water. The pressure from and responsibility to the taxpayer are the first two things that are considered when dealing with stormwater. Generally the third thing considered by municipalities is how to deal with stormwater so as not to in any way impact development because taxable development is king. These are real and important perspectives.

Comment II.B.5 from the Town of Rochester - A little background. The City of Rochester is located 20 miles north of here. The population is 31,000. I would characterize Rochester as a working class community probably in the bottom third in terms of per capita income in the State of New Hampshire and therefore its ability for its people to pay.

During the first permit round in 2003, you issued essentially the six minimum controlled guidelines and asked us to create a stormwater manager plan which we essentially took stock of the goals in the general permit and looked at what we could do, what we could achieve within the context of our resources and prepared a plan which we felt was doable by the city and its residents and within the framework of the city's ability to pay and meet its resources with the goal of achieving improved stormwater quality into the environment.

We prepared our plan, submitted it to you and it was approved and in the intervening five years worked and met all of the elements of our stormwater management plan. In fact, during the permit period, we added some things as a result of input from our residents ideas as the program matured and in a period of pretty good economic times we were able to do some things such as build a new salt shed, and implement a new stormwater management ordinance and which enhanced our controls of property development.

Rochester was one of the fastest growing communities in the state of New Hampshire during this period. Development has slowed down considerably as a result as income into the city's coffers. Just this past year, however, with the turning south of the economy there been increased pressures on our citizenry to essentially say stop to increased government spending. We are one of the few communities in the state, our residents voted this past November overwhelmingly to support a tax cap, and now the city is entering a new era of fiscal discipline where we really cannot add new programs, we cannot do new construction and we will essentially have to scale back on a lot of the goals that we had been able to achieve in the past because of these constraints.

This is just at a time now where you are issuing a new permit, and it appears to be much more prescriptive and will add increased burdens and requirements that will cost significant amount of money such as the outfall monitoring as an example. Some of these things we might be able to do in-house, but many or much of it we can't. Essentially given the time line and the clash of the period of reduced revenues and increased responsibilities is something that will be much more difficult for us to do unless there is additional sources of revenue from the outside such as federal grant money, the state has stepped up now with the SRF program to now incorporate loans for stormwater purposes which has not been historically the case but loans can only go so far. It adds to a community's debt burden, regardless of the source and in order to adequately complete these things to meet your goals we really have to look at opening up grant money for programs like this if you want to have a successful permit program.\

Comment II.B.6 from City of Portsmouth (Boitenko) - Good morning, and my name is John Boitenko. I'm the city manager of Portsmouth. I want to thank you for the opportunity of comment with regard to the EPA proposed changes to the general permit for MS4s in New Hampshire. The City of Portsmouth, as you may be aware, is located on the Piscataqua River. Has a population of approximately 21,000 and consists of approximately 17 square miles.

Portsmouth's city storm drain infrastructure consists of approximately 323,000 lineal feet of pipe, 4,700 catch basins or manhole structures and 450 outfalls.

The City of Portsmouth has a longstanding commitment to the environment. We've adopted the eco municipality designation resolution in 2007 which means we have aspired and developed in ecologically and socially healthy community for long-term. We've completed the first LEED certified municipality in New Hampshire with our public library. In the city's wastewater treatment master plan, we have committed to advanced treatment for nutrient removal as part of our future upgrades. City employees participate in the state's water quality standards and advisory board. The city understands the importance of the environment and the programs that protect and/or improve our natural resources. We are committed to the intent and goal of the Clean Water Act. We appreciate the difficulty EPA faces trying to regulate stormwater that runs off of private and public lands, parking lots, driveways, streets and sidewalks to our local waters. Although we applaud EPA's efforts in this area some aspects of the proposed permit are excessively burdensome and will not improve stormwater quality.

Some of the proposed changes will shift money and time away from infrastructure and operational improvements that yield water quality benefits and instead focus on administrative activities that offer little environmental benefit. The city has evaluated the draft permit to determine the cost impacts related to your implementation of the new requirements. We estimate the compliance will cost approximately 2.1 million dollars over the permit cycle which will require between a 6% and 7% increase in the public works department budget. This coming at a time when the city is working towards a zero budget increase is just intolerable.

It is our position that money should go to infrastructure and operational improvements that will have water quality benefits. The permit as presently drafted, would create a significant administrative burden. This distracts from the city's ability to provide direct benefits to water quality through such activities such as increased street sweeping, catch basin cleaning and/or conducting construction site inspections. The city is submitting written comments to the draft permit. Those comments include proposed changes to the permit as drafted.

I want to take this opportunity to thank you for allowing me to provide these comments on the proposed permit. In submitting our comments we look forward to working together with the regulators to develop a permit that protects the water quality in a cost effective and practical manner. Thank you.

Response to Comments II.B.1 to 6 – [Modified from Newt's draft]

EPA recognizes the concern over the cost of the Draft Permit requirements, with commentors' cost estimates ranging from \$45,000 (Amherst) to \$850,000 (Manchester) per year. In response to these comments, EPA has gathered information on program implementation costs from information provided in comments by municipalities; information provided in annual reports during the previous permit term; information gathered through informal interviews with municipal stormwater coordinators; data gathered by Horsley Witten as part of the cost estimation for the Charles River Residual

Designation Permit; cost information provided by 3rd party vendors and consultants; and EPA best professional judgment. This information was then compiled to estimate the range of costs for municipalities to implement the 6 minimum control measures found in the Draft Permit.

The costs considered within each of the 6 minimum control measures are found in Table II.B1. The EPA analysis deals specifically with the cost of implementation of the 6 minimum control measures and does not take into account any permit specific requirements which could increase the cost above what is presented below if the municipality is subject to additional provisions (e.g. TMDL requirements). EPA estimates that implementing the requirements associated with the 6 minimum control measures found in Table 1 could cost between \$88,000 and \$936,000 per year (2010 dollar value). The large variability in this estimate is due to differences among the municipalities implementing the program including: varying size of jurisdictional area, number of lane miles, number of outfalls, and degree of urbanization. This cost estimate represents the estimated total cost of compliance with permit terms found in Table 1 and will include cost of some items the permittee may already be doing or have done as a matter of standard practice or for compliance with the 2003 permit. Table 1 also gives estimates of potential increase in program implementation cost over what was required in the 2003 Permit or what may have been done by a municipality as standard practice. Using assumptions found in the notes of Table 1, EPA estimates that the Draft Permit will increase the cost of program implementation by municipalities by greater than 2.5 times the cost of the previous permit term.

Table II.B 1: Range of cost for implementing the 6 minimum control measures associated with the Draft Phase II MS4 Permits¹

Minimum Control Measure(s)	Costs Considered	Low end average yearly cost estimate ²	Low end average annual cost previous permit term ³	High end average yearly cost estimate ⁴	High end average annual cost previous permit term ³
(1)Public Education and Outreach (2)Public Participation (3)Construction Site Runoff Control (4)Post Construction Runoff Control	Public education and outreach programs, construction and post construction site inspections, SWPPP development, and administrative costs ⁵	\$ 3,000	\$ 1,000	\$ 203,000	\$ 99,000

Commented [NWT1]: I agree, these should go in good housekeeping. I used costs from HW. \$2,500 per SWPPP. I also assumed the small munis would do 2 and large would do 10. Does this make sense? While the SWPPPs are \$2,500 each they are a 1 time cost and therefore the cost is averaged over the 5 year permit term to get an average annual cost.

General Permit for Stormwater Discharges From Small MS4s – New Hampshire
Response to Comments Version 1.0

(5) Illicit Discharge Detection and Elimination	System Mapping ⁶ and IDDE Planning	\$ 15,000	No applicable data from previous permit term	\$ 77,000	No applicable data from previous permit term
	IDDE Implementation ⁷	\$ 3,000	No applicable data from previous permit term	\$ 11,000	No applicable data from previous permit term
	Outfall Monitoring ⁸	\$ 3,000	No applicable data from previous permit term	\$ 31,000	No applicable data from previous permit term
(6) Good Housekeeping	Catch Basin Cleaning ⁹	\$ 28,000	\$ 11,000	\$ 226,000	\$ 110,000
	Catch Basin Inspection	\$ 14,000	--	\$ 113,000	--
	Sidewalk Sweeping	??		??	
	Street Sweeping	\$ 16,000	\$ 11,000	\$ 172,000	\$ 89,000
Total		\$ 82,000	\$ 23,000	\$ 833,000	\$ 199,000
Total Including Safety Factor ¹⁰		+30% (rounded to nearest \$1000)	\$ 100,000	\$1,043,000	

Notes:

- 1- Cost range should be considered a rough estimate of program cost and only includes those activities specifically mentioned in Table 1. Due to insufficient cost information, the following MEP practices associated with the 6 minimum control measures have not been included in the cost estimate and are assumed to be covered within the 30% safety factor applied to the final cost estimate:
 - a. Development of a construction site runoff control program (§2.3.5.3)
 - b. Creation or updating of a post construction stormwater management ordinance or regulation (§2.3.6.4)
 - c. Development of procedures to require submission of as built drawings to ensure proper post construction stormwater control (§2.3.6.6)
 - d. Development of a report assessing local requirements affecting the creation of impervious cover (§2.3.6.7)
 - e. Development of a report assessing local regulations affecting the use of low impact development techniques (§2.3.6.8)
 - f. Tracking of directly connected impervious cover Development of a report assessing local requirements affecting the creation of impervious cover (§2.3.6.9)
 - g. Development of operation and Maintenance procedures and programs for municipal owned properties (§2.3.7.1)
 - h. Any maintenance of stormwater infrastructure or maintenance of stormwater BMPs
 - i. Additional administrative costs not accounted for in Note 4, including salaries for dedicated stormwater management employees.
- 2- Low end cost estimate include the following assumptions:
 - a. Regulated population is equal to 1,000
 - b. Staff cost is assumed to be \$35 per hour (it should be noted that a 50% fluctuation in staff costs only results in a an approximate 15% fluctuation in overall program cost), no requirements are assumed to be completed by outside consultants
 - c. Number of lane miles (total miles multiplied by 2) is estimated at 50
 - d. Street sweeping is assumed to be conducted by a 3rd party at \$104 per lane mile
 - e. Assumes 1,000 catch basins.
 - f. IDDE protocol implementation assumes 2 days of dye testing per year and assumes 20 key junction manholes

- g. Assumes 20 outfalls
 - h. Assumes 2 SWPPPs
 - i. All costs are 2010 dollar values
- 3- Average annual cost of the previous permit term is an estimate of the cost of implementing the 6 minimum control measures as required by the 2003 Permit or what municipalities may consider standard practice. For the purposes of this calculation, it was assumed that municipalities swept their streets once per year and cleaned each catch basin once per permit term. It was also assumed that the Draft Permit would cause a doubling of administrative costs and does not include any SWPPP development cost.
- 4- High end cost estimate includes the following assumptions:
- a. Regulated population is equal to 100,000 (population threshold at which a municipality is designated a medium MS4 40 CFR §122.26(b))
 - b. Staff cost is assumed to be \$35 per hour (it should be noted that a 50% fluctuation in staff costs only results in an approximate 15% fluctuation in overall program cost), no requirements are assumed to be completed by outside consultants
 - c. Number of lane miles (total miles multiplied by 2) is estimated at 800
 - d. Street sweeping is assumed to be conducted by a 3rd party at \$104 per lane mile
 - e. Assumes 10,000 catch basins
 - f. IDDE protocol implementation assumes 8 days of dye testing per year and assumes 1000 key junction manholes
 - g. Assumes 600 outfalls
 - h. Assumes 10 SWPPPs
 - i. All costs are 2010 dollar values
- 5- Administrative costs include general minimum measure administration, interagency agreement coordination, and annual reporting. SWPPP development cost is equal to \$2,500 per SWPPP (cost reported by Horsley Witten¹).
- 6- Assumes no mapping was completed during the 2003 permit term and all mapping is complete by the end of year 2 of the new permit term. Also includes cost of catchment delineation.
- 7- IDDE protocol implementation assumes screening of 20 manholes per day using test kits for analysis of NH₃ and Surfactants, 2/3 of junction manholes inspected will have flow and will require screening (conservative estimate). Cost of removing the illicit connection is not included as part of the assessment. Illicit connections discharging through the MS4 are not authorized under the permit and therefore the removal of illicit connections is not considered a minimum control measure. Illicit connections could also be subject to fines and therefore timely removal of the illicit connection could be a cost savings that would need to be factored into removal.
- 8- Outfall screening includes wet and dry weather screening of all outfalls during the permit term starting in year 2. Cost assumes 15 outfalls screened per day during dry weather and 2/3 of outfalls (conservative estimate) will have flow. Cost estimate assumes 8 outfalls screened per day during wet weather. pH, conductivity and temperature are assumed to be measured with a handheld meter. NH₃, surfactants and chlorine are assumed to be analyzed using test kits. Bacteria samples are assumed to be analyzed by a laboratory. Cost also includes a 30% safety factor to account for sampling for pollutants of concern.
- 9- Cost of catch basin cleaning is assumed to be \$55 per catch basin which includes time, disposal costs and optimization software.
- 10- Safety factor applied to account for errors in cost estimation as well as MEP requirements not accounted for in cost estimation (see Note 1).

Final Permit IDDE Program and Monitoring Revisions and Cost Implications

In order to help offset some of the financial burden placed on municipalities in implementing the 6 minimum control measures, EPA has modified the Outfall Monitoring Requirements (Section 3.0 of the Draft Permit) and provided an extended schedule for completion of illicit discharge investigations. A comparison of the updated requirements

¹ Horsley Witten, 2011. Sustainable Stormwater Funding Evaluation for the Upper Charles River Communities of Bellingham, Franklin, and Milford, MA

from the Draft Permit to the Final Permit can be found in Table II.B.2. As can be seen by Table II.B.2, the outfall monitoring burden placed on municipalities has been reduced by limiting the scope of Wet and Dry Weather Monitoring (**Section XXX** of the Final Permit) as well as limiting the scope of catchments subject to IDDE implementation (Section 2.3.4.8 of the Draft Permit). EPA has also extended the timeline of compliance for completion of the IDDE program to 15 years in the Final Permit, in order to reduce the year to year burden of the IDDE program on municipalities. Even with additional Post Correctional Followup Screening and Ongoing Outfall and Interconnection Screening requirements in the Final Permit, the changes in IDDE implementation and monitoring requirements in the Final Permit could decrease the average annual cost of these two requirements more than 50%. The low end estimate to comply with the IDDE implementation requirements and monitoring requirements could decrease from an average annual cost of \$3,000 (2010, dollar value) per year in the Draft Permit to an average cost of \$2,000 (2010, dollar value) per year in the Final Permit. The high end estimate to comply with the IDDE implementation requirements and monitoring requirements could decrease from an average annual cost of \$31,000 (2010, dollar value) per year in the Draft Permit to an average cost of \$12,000 (2010, dollar value) per year in the Final Permit.

Table II.B.2: Summary of Draft and Final Permit IDDE and Monitoring sections changes

Permit Condition	Draft Permit Section and Requirements	Final Permit Section and Requirements
Dry Weather Outfall and Interconnection Screening	Section 3.0 Complete 25% of dry weather inspections and Screening per year starting year 2 (100% by the end of permit term) for ammonia, chlorine, surfactants, bacteria, temperature, and conductivity	Section XXXX Inspect and sample all outfalls and interconnections for ammonia, chlorine, surfactants, bacteria, temperature, and conductivity within 2 years unless: <ol style="list-style-type: none"> 1. Catchment is designated as problem catchments 2. Catchment is exempt from Screening¹ or 3. Outfall was sampled during previous permit term for ammonia, chlorine, surfactants, bacteria, temperature, and conductivity
Wet Weather Outfall and Interconnection Screening	Section 3.0 Complete 25% of wet weather Screening per year starting year 2 (100% by the end of permit term) for ammonia, chlorine, surfactants, bacteria, temperature and conductivity	None

General Permit for Stormwater Discharges From Small MS4s – New Hampshire
Response to Comments Version 1.0

Permit Condition	Draft Permit Section and Requirements	Final Permit Section and Requirements
Catchment Investigation	None stated (assumed completed within five year permit term)	<p>Section XXXX</p> <ul style="list-style-type: none"> • Year 3: Complete 80% of Problem Catchment Investigations • Year 5: Complete 100% of Problem Catchment Investigations and 30% of all Catchment Investigations • Year 10: Complete 60% of all Catchment Investigations • Year 15: Complete 100% of all Catchment Investigations
Dry Weather Post-correction Followup Screening	None	<p>Section XXXX</p> <p>Inspection/sampling for ammonia, chlorine, surfactants, bacteria, temperature and conductivity within 1 year of Catchment Investigation completion and removal of all illicit found</p>
Wet Weather Post-correction Followup Screening	None	<p>Section XXXX</p> <p>Screening for ammonia, chlorine, surfactants, bacteria, temperature and conductivity within 1 year of Catchment Investigation completion and removal of illicit on those catchments meeting wet weather vulnerability criteria²</p>
Ongoing Periodic Screening	None	<p>Section XXXX</p> <p>Conduct Dry Weather and Wet Weather (if applicable) Outfall and Interconnection Screening once every 5 years from last screening event.</p>

¹See **Section xxxxxx**. of the Final Permit

² See **Section xxxxxx**. of the Final Permit

Final Permit Street Sweeping Revisions and Cost Implications

In order to further offset some of the financial burden placed on municipalities in implementing the 6 minimum control measures, EPA has updated the street sweeping requirements (Section 2.4.7.1.d.iv. of the Draft Permit). The Final Permit has reduced the required sweeping frequency from two times per year to one time per year during the spring months. In the Draft Permit, street sweeping could account for as much as 26% (before 30% safety factor) of the total amount spent per year complying with the 6 minimum control measures described in Table 1. While EPA views street sweeping as an important control measure for removing sediment and decreasing the pollutant load to streams, there is little evidence to support increasing the frequency of street sweeping activity ~~beyond to two times per year~~ sweeping all roadways once per year in during the spring months, when sediment loads are the highest². However, EPA notes that a more intensive street sweeping program can have water quality benefits in those watersheds that have nutrient, metals and sediment impairments. With the large burden street sweeping places on municipalities and the inconclusive connection between increased sweeping frequencies and receiving water quality, EPA has reduced the required street sweeping frequency to match the frequency in the 2003 Small MS4 Permit with the added requirement of sweeping during the spring months to maximize water quality benefits. This reduction in street sweeping frequency could reduce the annual cost for municipalities between \$5,000 (low end, 2010 dollar value) and \$83,000 (high end, 2010 dollar value).

Final Permit Estimated Cost

EPA estimates the implementing the requirements of the 6 minimum control measures found in the Final Permit could cost between \$78,000 (2010 dollar value) and \$798,000 (2010 dollar value) (see Table 3). These costs represent a potential annual savings between \$8,000 or approximately 13 percent and \$106,000 or approximately 17 percent from the Draft Permit conditions.

Table II.B.3: Range of cost for implementing the 6 minimum control measures associated with the Final Phase II MS4 Permits¹

Minimum Control Measure(s)	Costs Considered	Low end average yearly cost estimate ²	Low End cost change from Draft Permit condition ³	High end average yearly cost estimate ⁴	High End cost change from Draft Permit condition ³
----------------------------	------------------	---	--	--	---

² Selbig, W.R., and Bannerman, R.T., 2007, Evaluation of street sweeping as a stormwater-quality-management tool in three residential basins in Madison, Wisconsin: U.S. Geological Survey Scientific Investigations Report 2007–5156, 103 p.

General Permit for Stormwater Discharges From Small MS4s – New Hampshire
Response to Comments Version 1.0

Minimum Control Measure(s)	Costs Considered	Low end average yearly cost estimate ²	Low End cost change from Draft Permit condition ³	High end average yearly cost estimate ⁴	High End cost change from Draft Permit condition ³
(1)Public Education and Outreach (2)Public Participation (3)Construction Site Runoff Control (4)Post Construction Runoff Control	Public education and outreach programs, construction and post construction site inspections, SWPPP development, and administrative costs ⁵	\$ 3,000	\$ 0	\$ 203,000	\$ 0
(5)Illicit Discharge Detection and Elimination	System Mapping ⁶ and IDDE Planning	\$ 15,000	\$ 0	\$ 77,000	\$ 0
	IDDE Implementation ^{7,8}	\$ 1,000	\$ -2,000	\$ 7,000	\$ -4,000
	Outfall Monitoring ^{8,9}	\$ 2,000	\$ -1,000	\$ 12,000	\$ -19,000
(6)Good Housekeeping	Catch Basin Cleaning ¹⁰	\$ 28,000	\$ 0	\$ 226,000	\$ 0
	Catch Basin Inspections	\$ 3,000	\$ -11,000	\$ 23,000	\$ -90,000
	Sidewalk Sweeping	\$ 0	??	\$ 0	??
	Street Sweeping	\$ 11,000	\$ -5,000	\$ 89,000	\$ -83,000
Total		\$ 60,000	\$ -19,000	\$ 614,000	\$ -196,000
Total Including Safety Factor ¹¹	+30% (rounded to nearest \$1000)	\$ 78,000		\$ 798,000	

1- See Table II.B.1, note 1.

2- See Table II.B.1, note 2. (need to add wet weather vulnerabilities)

3- Change in cost from draft permit condition is represented in 2010 dollar values. Negative numbers indicate a decrease in annual cost from the draft permit condition.

4- See Table II.B.1, note 4. (need to add wet weather vulnerabilities)

5- See Table II.B.1, note 5.

6- See Table II.B.1, note 6.

7- See Table II.B.1, note 7.

8- 3% of outfalls and catchments are assumed to be exempt from screening and the IDDE implementation (see Section XXX of Final Permit for exempt criteria).

- 9- Outfall screening includes dry weather screening of all non-exempt outfalls and wet weather screening of those outfalls whose catchment contains wet weather vulnerabilities (see **Section XXX** of Final Permit) completed 15 years from permit issuance, starting in year 2. Cost assumes 15 outfalls screened per day during dry weather and 2/3 of outfalls (conservative estimate) will have flow. Cost assumes 8 outfalls will be screened per day during dry weather screening. pH, conductivity and temperature are assumed to be measured with a handheld meter. NH₃, surfactants and chlorine are assumed to be analyzed using test kits. Bacteria samples are assumed to be analyzed by a laboratory. Cost also includes a 30% safety factor to account for sampling for pollutants of concern. Dry and wet weather completion screening begin to take place in year 3 based on number of Catchment Investigations completed in year 2. Ongoing Periodic Screening begins to take place 7 years from permit issuance.
- 10- Cost of catch basin cleaning is assumed to be \$55 per catch basin which includes time, disposal costs and optimization software.
- 11- Safety factor applied to account for errors in cost estimation as well as MEP requirements not accounted for in cost estimation (see Note 1).

Potential Realized Increased Costs

Many communities in Massachusetts and New Hampshire are already complying with requirements in the Final Permit for asset management purposes and the program costs for these municipalities will be less than what is estimated in Table 3. Table 4 (below) estimates the program cost for a municipality that already institutes a catch basin cleaning program and street sweeping program according to the Final Permit requirements. Table 4 also assumes the municipality has completed a system map of their stormwater assets, but has yet to delineate catchments in accordance with the Final Permit conditions. As can be seen in Table 4, a municipality that has mapped its stormwater assets, routinely cleans all municipally owned catch basins, and has a street sweeping program will only realize an increased program cost of between \$17,000 (low end 2010 dollar value) and \$299,000 (high end 2010 dollar value).

Table 4: Range of potential realized increased cost for implementing the 6 minimum control measures associated with the Final Phase II MS4 Permits¹

Minimum Control Measure(s)	Costs Considered	Low end average yearly cost estimate ²	High end average yearly cost estimate ³
(1)Public Education and Outreach (2)Public Participation (3)Construction Site Runoff Control (4)Post Construction Runoff Control	Public education and outreach programs, construction and post construction site inspections, SWPPP development , and administrative costs ⁴	\$ 3,000	\$ 203,000
(5)Illicit Discharge Detection and Elimination	System Mapping ⁵ and IDDE Planning	\$ 7,000	\$ 8,000
	IDDE Implementation ^{6,7}	\$ 1,000	\$ 7,000

Minimum Control Measure(s)	Costs Considered	Low end average yearly cost estimate ²	High end average yearly cost estimate ³
	Outfall Monitoring ^{7,8}	\$ 2,000	\$ 12,000
(6) Good Housekeeping	Catch Basin Cleaning	\$ 0	\$ 0
	Street Sweeping	\$ 0	\$ 0
Total		\$ 13,000	\$ 230,000
Total Including Safety Factor ⁹	+30% (rounded to nearest \$1000)	\$ 17,000	\$ 299,000

- 1- See Table II.B.3, note 1.
- 2- See Table II.B.3, note 2.
- 3- See Table II.B.3, note 4.
- 4- See Table II.B.3, note 5.
- 5- Assumes 100% of outfalls and other stormwater assets were mapped during the 2003 permit term. Mapping costs only include GIS maintenance and upkeep, along with the cost of catchment delineation which is assumed to take 20 hours for the low end municipality and 40 hours for the high end municipality.
- 6- See Table II.B.3, note 7.
- 7- 3% of outfalls and catchments are assumed to be exempt from screening and the IDDE implementation (see **Section XXX** of Final Permit for exempt criteria).
- 8- See Table II.B.3, note 9.
- 9- Safety factor applied to account for errors in cost estimation as well as MEP requirements not accounted for in cost estimation (see Note 1).

Additional Costs for Discharge to Impaired waters and TMDL Compliance

TMDL Compliance (NH example?)

TMDL compliance for municipalities could increase the annual cost of compliance significantly. As an example, municipalities within the Charles River watershed will need to comply with either the Total Maximum Daily Load for Nutrients In the Lower Charles River Basin, Massachusetts or the Total Maximum Daily Load for Nutrients In the Upper/Middle Charles River, Massachusetts. A study conducted by Horsley Witten³ found that the production of an implementation plan and a certified municipal plan for complying with the Nutrient TMDL could cost approximately **\$84,000 per year**. This cost does not include the installation of any structural BMPs and only accounts for initial planning associated with the phosphorous control plan.

Commented [NWT2]: I say we remove this section. I am working on a Charles specific RTC but I don't think its feasible to estimate compliance with TMDLs across the board.

Discharges to Impaired waters

³ Ibid.

[Reserved]

Comment II.B.7 from City of Manchester - The concern that we have along with the other communities that were represented at the public hearing is with the costs associated with this program. The City of Manchester estimates that compliance with this permit will cost at a minimum an additional \$850,000 per year above what is already being spent to comply with the current permit. This cost is 1/3 of the entire personnel cost for a staff of 44 employees at the wastewater treatment plant. In this economic environment with budget cuts and lost revenues the communities that are regulated under this permit including Manchester would have a difficult time ensuring these funds will be available and therefore complying with this section based on the current permit requirements and associated costs.

...

[The catch basin cleaning] requirement is the most expensive cost to all Phase II communities throughout New England. This would be very costly to the City of Manchester. The City has 14,000 catch basins in its system. The cost to clean half of the basins every year would cost the City approximately \$350,000 per year and the cost to inspect the other half of the catch basins would be approximately \$350,000 per year. There is also a requirement to inspect all stormwater structures annually. The City has 3,000 drainage manholes that would cost approximately \$150,000 per year to inspect them. Total compliance cost for just this part of the permit would exceed \$850,000 annually.

Currently, as documented in the past five year annual stormwater reports, Manchester cleans between 1,800 and 2,000 catch basins (about 15% of the City's basins). One thousand of these are hired out to a private contractor and between 800 to 1,000 are completed by the City. The catch basin contractor also works for other communities and the NH DOT. We are hard pressed to get them to fulfill their commitment of 1,000 catch basins cleaned annually.

The City has two vactor trucks. These are used to clean sewer and drain lines, clean siphons, clean sewer manholes as well as drain manholes along with use for emergency blockages and root cutting. Neither Manchester, nor other communities could fulfill this requirement as there is not nearly enough equipment to get this work completed. Manchester would have to buy a third and possibly a fourth vactor truck or discontinue the sewer drain and siphon cleaning program. This is in direct conflict with the CMOM requirements of our NPDES. As you can see this places Manchester along with all other communities between a rock and a hard place and sets every permittee up for failure. It may be prudent to place the 20% criteria for cleaning in the permit to cover the five-year permit cycle. Manchester could struggle to go from 15% to 20% and probably accomplish this, but it would be improbable to go from 15% to 50%.

The above rationale would also apply to the inspection requirement. Rather than 100% every year, Manchester believes that an easing into the program of 20% a year is the upper end of the labor intensive limit without adding staff to the already anticipated \$875 000 annual increase

the current proposal requires. The dry weather screening reflects this rational, and as the catch basin cleaning and inspection is so much more labor and cost intensive, justifies completing this requirement over the five-year permit cycle.

The City of Manchester currently does the following for the stormwater program. The system is 60% combined. Most of the catch basins, drainage structures, and storm sewers discharge to the combined system and therefore to the Wastewater Treatment Facility. Currently the City cleans all the catch basins that surround the urban ponds twice per year to protect these water bodies from sediment loadings. The structural BMPs such as baffle tanks, forebays, and particle separators get inspected twice per year and they get cleaned at least once per year. Many do get cleaned twice per year. Our crews also clean some other catch basins. The City of Manchester contracts out catch basin cleaning above what they clean with their own crews. The contractor cleans approximately 1,000 basins per year based on the funds allocated.

Our past five annual reports have shown that this is adequate to address stormwater issues from the previous permit. We believe a continuation of this level of effort, with a modest incremental increase in expectations is warranted, but not to the level as proposed in the draft permit.

Response to Comment II.B.7 – EPA generally agrees with the City of Manchester’s assessment of the scale of overall costs of the Draft Permit requirements, with some exceptions, and has made several modifications to the permit in an effort to reduce some of these costs.

With respect to cost estimates, the City of Manchester estimates an overall cost of \$850,000 over and above its current spending, and a total of \$875,000 for the operation and maintenance requirements alone (presumably this includes some costs that are currently being incurred). EPA has produced its own cost estimate calculator for the Draft Permit, and based on the system data provided by Manchester has estimated a total cost of approximately [\$950,000] for the City of Manchester, with an increase of approximately [\$700,000] over an assumed baseline of spending intended to reflect standard operations. [Include attachments with cost estimation worksheets.]

One significant difference between the estimates is in the assumed cost of inspections. First, the Draft Permit was not intended to require annual inspections of drain manholes, and the permit has been revised to indicate that annual inspection of stormwater structures applies only to structural stormwater treatment BMPs (not including catch basins). Manholes inspections are required in connection with the IDDE program but these occur over an extended period and apply only to key junction manholes. Second, EPA assumed that catch basin inspections would occur in conjunction with cleanings, and that the cost of inspecting the catch basins that were not cleaned in a particular year would be approximately half the cost of cleaning. These differences would result in a reduction of approximately \$225,000 per year from the estimates provided by the City.

Commented [NWT3]: Or was this from draft to final?

EPA has made changes to the Draft Permit intended to reduce these costs and allow targeting of efforts to areas needing greater attention. Annual catch basin inspections are no longer required and catch basin cleaning had been changed to a performance-based

standard (goal of no more than 50% full), as discussed in Response to Comments _____. EPA recognizes that this may or may not reduce overall catch basin cleaning frequency, although it will allow the City to target areas with higher sediment loads and leading to impaired waters (as well as target catch basins that are filling more frequently through source controls such as additional street sweeping and improved construction erosion and sediment control). EPA expects that some inspections will be still necessary, perhaps on the order of 20% per year, to develop and implement the optimization program. Based on the City's estimate, the reduction in annual inspections would reduce costs estimated by the City by \$280,000/year. The Final Permit also eliminates the requirement for sidewalk sweeping and eliminates the requirement for a fall street sweeping of all streets, as discussed in the Responses to Comments ____ and _____. In addition, the Final Permit includes revised monitoring requirements that will substantially reduce those costs, through allowing use of field kits, reduction in monitoring parameters, and reduction in wet weather monitoring requirements. See Responses to Comments ____ and _____. EPA estimates that these changes will reduce estimated costs by [15 to 20 percent] from the Draft Permit requirements, even if overall catch basin cleaning frequency remains an average of every other year under the revised performance based approach.

Commented [NWT4]: Or was this from draft to final?

EPA also notes that the above estimates assume that all of the identified structures are within the separate stormwater system. As the City of Manchester has noted, 60% of their system is a combined system. The combined system structures are not subject to the requirements of this permit. Operations in those areas are governed by the City's CMOM under its treatment plant permit.

Changes to permit: none.

Comment II.B.8 from City of Portsmouth – [spreadsheets attached to comment]

Response to Comment II.B.8 – EPA appreciates the detailed cost estimates provided by the City of Portsmouth, which have been extremely helpful in assessing overall costs as well as the costs of specific permit items. As stated in the response to Comment II.B.7, EPA has made a number of changes in the permit with the intent to reduce those costs to the extent possible consistent with the MEP standard. As they affect the costs reported by the City of Portsmouth, these changes should reduce overall costs by nearly 40%, as set forth below:

First, the City of Portsmouth reports that the cost of annual catch basin inspections and biannual cleaning is \$203,040 for its 4,700 catch basins. EPA has modified the catch basin requirement to mandate a cleaning goal of no more than 50% full, with no mandate for inspections. See Response to Comments _____. While some inspections will be required to design the program and ensure it is meeting the stated goal, EPA assumes that this can be accomplished with targeted inspections (approximately 20% of catch basins each year). EPA does not assume that there will be an overall reduction in catch basin cleaning frequency, although the permit now allows flexibility to clean some catch basins less frequently while others are cleaned

more frequently. Using the City’s cost basis (20 minutes per inspection by a crew of two), this should reduce annual cost by approximately \$100,267 (2,507 hours).

With respect to monitoring, EPA notes that the cost per outfall of the monitoring requirement has been substantially reduced by the reduction in parameters and the allowable use of field kits. The City of Portsmouth estimated an “outside services” cost of \$712/outfall (in addition to a staff cost totaling 4 hours per outfall), which EPA assumes reflects the cost of laboratory analyses. The use of field kits should reduce analytical costs to approximately \$70 per outfall where the receiving water is not impaired (and thus requiring additional analyses). For impaired waters (obviously of significance to Portsmouth, where nearly all waters are impaired), the new Appendix H outlines the required parameters for monitoring for specific impairments. A number of impairments, such as those for dioxin and PCBs, are not considered to be related to municipal stormwater discharges and monitoring is not required for such pollutants. Additional monitoring requirements will be required for most outfalls, however, ranging from relatively inexpensive pH monitoring for discharges to South Mill Pond to extensive metals, PAH and Total Nitrogen analysis for discharges to Upper Sagamore Creek.

Commented [NWT5]: Does this assume 4 outfalls are screened per day? That’s ½ what we estimate can be completed

The table below shows the additional monitoring requirements and estimated costs per outfall. The highest cost, for Upper Sagamore Creek, is an additional \$278/outfall, giving a total cost per outfall of \$348, less than half of Portsmouth’s estimate based on the Draft Permit. Assuming Portsmouth’s outfalls are distributed in proportion to stream miles, the average additional cost per outfall is approximately \$102, or \$172 total material and lab cost per outfall.

Receiving Water	Stream miles	Monitoring parameter	Additional cost per outfall
BACK CHANNEL	1.3	Lead, Total Nitrogen	\$128
BERRY’S BROOK	4.59	DO, BOD5, pH, Total Phosphorus	\$55
BORTHWICK AVE BROOK	1.34	Chloride, DO, BOD5, Iron, pH, Total Phosphorus	\$190
LOWER HODGSON BROOK	1.34	Chloride, DO, BOD5, pH, Total Phosphorus	\$80
LOWER PISCATAQUA RIVER - SOUTH	3.11	Total Nitrogen	\$18
LOWER SAGAMORE CREEK	0.93	Total Nitrogen	\$18
NEWFIELDS DITCH	1.31	Chloride, pH	\$30
NORTH MILL POND	1.23	pH	\$5
PICKERING BROOK	5.52	Chloride, DO, BOD5, Iron, pH, Total Phosphorus	\$190
SAGAMORE CREEK	0.98	Chloride, pH	\$30
SOUTH MILL POND	0.47	pH	\$5
UPPER HODGSON BROOK	1.31	Chloride, DO, BOD5, pH, Total Phosphorus	\$80

General Permit for Stormwater Discharges From Small MS4s – New Hampshire
Response to Comments Version 1.0

UPPER SAGAMORE CREEK	3.91	Fecal coliform, Metals (scan), PAHs (scan), Total Nitrogen	\$278
LOWER GRAFTON BROOK	1.14	N/A	\$0
ELWYN BROOK	0.23	N/A	\$0
HAINES BROOK	0.58	N/A	\$0
UNNAMED BROOKS	1.83	N/A	\$0
Total stream miles	31.12	Average cost/outfall	\$102

Changes to permit: none.

EPA has also reduced the overall monitoring by limiting wet weather monitoring to areas with specific system vulnerability factors and deferring that monitoring until after an IDDE investigation has been conducted (to be completed within one year of completion of investigation). This will allow wet weather monitoring to be targeted to problem areas and will spread the cost over the fifteen year timeline for IDDE completion (averaging about 7% of outfalls per year, rather than 25%). This results in a substantial overall cost savings, even with a compressed schedule for dry weather screening and the addition of post-investigation screening. The impact on annual monitoring costs is shown below. The average annual cost of monitoring is reduced from \$111,060 under the Draft Permit to \$12,650 under the Final Permit, a reduction of over \$98,000 per year. (EPA also believes that staff costs will be reduced below four hours per outfall as staff become accustomed to monitoring, further reducing costs, but has incorporated Portsmouth staffing estimate for this calculation).

Monitoring cost comparison based on Portsmouth cost estimate

DRAFT PERMIT		Outfalls sampled		Cost per outfall		Total cost
		%	Number	Staff cost	Lab/materials	
Year 2-3	Dry-screening	25%	112.5	40	\$ -	\$ 4,500
	Dry-sampling	2.5%	11.3	40	\$ 712	\$ 8,460
	Wet-sampling	25%	112.5	160	\$ 712	\$ 98,100
Year 4-5	Dry-screening	25%	112.5	40	\$ -	\$ 4,500
	Dry-sampling	2.5%	11.3	40	\$ 712	\$ 8,460
	Wet-sampling	25%	112.5	160	\$ 712	\$ 98,100
Average annual cost over permit term:						\$ 111,060

FINAL PERMIT		Outfalls sampled		Cost per outfall		Total cost
		%	Number	Staff cost	Lab/materials	
Year 2-3	Dry-screening	50%	225	40	\$ -	\$ 9,000
	Dry-sampling	5%	22.5	40	\$ 172	\$ 4,770
	Wet-sampling	0%	0	160	\$ 172	\$ -

General Permit for Stormwater Discharges From Small MS4s – New Hampshire
Response to Comments Version 1.0

Year 4-5	Dry-screening	8%	34.6	40	\$ -	\$ 1,385
	Dry-sampling	1%	3.5	40	\$ 172	\$ 734
	Wet-sampling*	7%	28.35	160	\$ 172	\$ 9,412
<i>Average annual cost over permit term:</i>						\$ 12,650

* Assumes 90% of system has system vulnerability factors and IDDE investigations completed at constant pace over thirteen years consistent with IDDE schedule

In total, based on Portsmouth's cost tables, these permit changes will reduce the cost to Portsmouth by an average of approximately \$199,000, or about 45%, with an estimated average cost of \$234,000 per year. This calculated cost for the Final Permit is reasonably consistent with the estimate of approximately \$270,000/year calculated by EPA for a community with the number of outfalls, catch basins and road miles as Portsmouth. (EPA's estimate includes street sweeping costs which are not in the Portsmouth cost estimate – presumably Portsmouth's existing street sweeping program meets permit requirements).

EPA recognizes that this level of expenditure is significant in a time of pressure on municipal budgets, but also that at an average of less than \$12/year per resident it is comparable to charges established as part of successfully stormwater utility fee programs such as that in Reading, MA (\$40/year per equivalent residential unit) and Burlington, VT (\$54/year per ERU).

Changes to permit: none.